Part IV. Plant Assessment Form

For use with "Criteria for Categorizing Invasive Non-Native Plants that Threaten Colorado's Wildlands and Agriculture"
By the Colorado Noxious Weed Advisory Committee

Electronic version: December 4, 2008

Table 1. Species and Evaluator Information

Species name (Latin binomial)**:**	Lespedeza cuneata (Dum. Cours.) G. Don
Synonyms:	Lespedeza juncea (L. f.) Pers. var. sericea Maxim.; Lespedeza sericea Miq., nom. illeg.; Anthyllis cuneata Dum. Cours.; Aspalathus cuneata D. Don; Hedysarum sericeum Thunb.; Lespedeza juncea var. sericea Forbes & Hemsl.; Lespedeza sericea Benth.
Common names:	Sericea lespedeza; Chinese lespedeza; Chinese bushclover; silky bushclover; Himalyan bushclover; common lespedeza; hairy lespedeza:
Evaluation date (mm/dd/yy)**:**	4/29/10
Evaluator #1 Name/Title:	Brad Lindenmayer/Research Assistant
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Section below for list committee use—please leave blank

List committee members:	enter text here
Committee review date:	enter text here
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	D	Rev'd, Sci. Pub'n	**Impact** *Enter four characters from Q1.1-1.4 below:* **DACC** *Using matrix, determine score and enter below:* **C**		
1.2	Impact on plant community	A	Rev'd, Sci. Pub'n			
1.3	Impact on higher trophic levels	C	Other Pub. Mat'l			
1.4	Impact on genetic integrity	C	Rev'd, Sci. Pub'n			
2.1	Role of anthropogenic and natural disturbance	B (2 pts)	Other Pub. Mat'l	**Invasiveness** *Enter the sum total of all points for Q2.1-2.7 below:* **15** *Use matrix to determine score and enter below:* **B**		**Wildlands Plant Score** *Using matrix, determine Overall Score and Alert Status from the first, second, and third section scores and enter below:* **Limited** **No Alert**
2.2	Local rate of spread with no management	A (3 pts)	Rev'd, Sci. Pub'n			
2.3	Recent trend in total area infested within state	U (0 pts)	Other Pub. Mat'l			
2.4	Innate reproductive potential Wksht A	A (3 pts)	Rev'd, Sci. Pub'n			
2.5	Potential for human-caused dispersal	A (3 pts)	Other Pub. Mat'l			
2.6	Potential for natural long-distance dispersal	C (1 pt)	Rev'd, Sci. Pub'n			
2.7	Other regions invaded	A (3 pts)	Other Pub. Mat'l			
3.1	Ecological amplitude/Range	A	Other Pub. Mat'l	**Distribution** *Using matrix, determine score and enter below:* **B**		
3.2	Distribution/Peak frequency Wrksht B	U	Other Pub. Mat'l			

4.1	Poisonous to livestock	D (0 pts)	Other Pub. Mat'l
4.2	Detrimental to economic crops	C (1 pt)	Other Pub. Mat'l
4.3	Detrimental to management of agricultural system, rangeland and pasture	D (0 pts)	Other Pub. Mat'l
4.4	Human impacts Wrksht C	A (3 pts)	Rev'd, Sci. Pub'n

Agricultural / Human Impact

Enter the sum total of all points for Q4.1-4.4 below:

4

Use matrix to determine score and enter below:

C

Agricultural Plant Score

Using matrix, determine Overall Score and Alert Status from the second, third and fourth section scores and enter below:

Limited

No Alert

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes D Rev'd, Sci. Pub'n back
Identify ecosystem processes impacted: There are negligible perceived impacts on the abiotic ecosystem processes.
Rationale: Sericea lespedeza, while perhaps adapted to establishing after disturbance like fire (1,2), has not been shown to alter the fire regime (3). Additionally, sericea lespedeza is a legume, but supplies less nitrogen to the environment than it consumes (4). Finally, sericea lespedeza was introduced to control erosion, so it will not negatively impact geomorpological processes (5).
Sources of information: 1) Griffith, C. 1996. Sericea lespedeza - a friend or foe? Ag News and Views. 14(10): 4. 2) Vermeire, L.T.; Bidwell, T.G; Stritzke, J. 1998. Ecology and management of sericea lespedeza, [Online]. In: OSU Extension Facts: F-2874. Stillwater, OK: Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources (Producer). Available: http://pearl.agcomm.okstate.edu/plantsoil/rangeland/f-2874.pdf 2010, April, 29. 3) Munger, Gregory T. 2004. Lespedeza cuneata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/, 2010, April 29. 4) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf, 2010, April 29. 5) Colorado Dept. of Agriculture. 2009. Sericea lespedeza identification and management. [Online] Colorado Dept. of Agriculture. Available: http://www.colorado.gov/ag/weeds, 2010, April 29.
Question 1.2 Impact on plant community composition, structure, and interactions A Rev'd, Sci. Pub'n back
Identify type of impact or alteration: Sericea lespedeza has the ability to form dense monocultures that not only compete with native and desireable species for soil water and nutrients, but also shade out other plants. Sericea lespedeza also excretes allelopathic compounds in both above and below ground tissue.
Rationale: Sericea lespedeza has been shown to quickly invade areas, changing the landscape dramatically by forming dense monocultures (1). Its primary mode of competition is its height. Sericea lespedeza can grow to be five feet tall, thus shading-out other plant species (1,2,3). Furthermore, sericea lespedeza is an inefficient user of water, which makes it consume more water than surrounding plants (1). Finally, sericea lespedeza excretes allelopathic coumpounds from it roots and leaves, preventing germination of other species except itself (1,4,5), further promoting the monoculture
Sources of information: 1) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf, 2010, April 29. 2) Colorado Dept. of Agriculture. 2009. Sericea lespedeza identification and management. [Online] Colorado Dept. of Agriculture. Available: http://www.colorado.gov/ag/weeds, 2010, April 29. 3) Brandon, A.L., D.J. Gibson, and B.A. Middleton. 2004. Mechanisms for dominance in an early successional old field by the invasive. Biological Invasions 6: 483–493.

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4) Kalburtji, K. L. and J. A. Mosjidis. 1992. Effects of sericea lespedeza residues on warm-season grasses. J. Range Manag. 45:441-444.

5) Kalburtji, K. L. and J. A. Mosjidis. 1993. Effects of sericea lespedeza residues on cool-season grasses. J. Range Manag. 46(4): 315-319.

Question 1.3 Impact on higher trophic levels C Other Pub. Mat'l back

Identify type of impact or alteration: Impacts to higher trophic levels are perceived to be minor.

Rationale: Sericea lespedeza has been promoted as a forage for wildlife foodplots in parts of the country and its folaige and seeds can be grazed by many species (1). However, most grazers find sericea laspedeza unpalatable and are more adapted to a diet of native flora (1) and any displacement of native vegetation has the potential to diminish the quantity and diversity of forage for wildlfe (2). On the other hand, it has also been observed that sericea lespedeza can provide cover for many bird species, including quail (1). Quail will also feed on the seeds, but it is of low nutritional value (1).

Sources of information: 1) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf, 2010, April 29.

2) Colorado Dept. of Agriculture. 2009. Sericea lespedeza identification and management. [Online] Colorado Dept. of Agriculture. Available: http://www.colorado.gov/ag/weeds, 2010, April 29.

Question 1.4 Impact on genetic integrity C Rev'd, Sci. Pub'n back

Identify impacts: Older literature states that hybridization can occur with native lespedeza, but are sterile. However, newer literature reports have identified fertile hybrids of exceptional vigor, occuring at low rates.

Rationale: Early studies were not able to produce hybrids between lespedeza species (1). However, in 1955, researchers were able to produce fertile crosses with L. latissima, L. inschanica, and L. hedysaroides (2). Even more recently, natural fertile hybrids were observed along roadsides with three native lespedeza species: L. procumbens, L. repens, and L. stuevei, with some crosses having exceptional vigor (3). Since that time, sericea lespedeza has been commercialized and bred for better forage qualities, making genetic integrity immaterial.

Sources of information: 1) Pieters, A. J. 1934. The little book of Lespedeza. The Colonial Press, Washington D. C., 94 pp.

2) Hanson, C. H. and W. A. Cope. 1955. Interspecific hybridization in Lespedeza. J. Hered., 46:233-238.

3) Clewell, A.F. 1967. Natural hybrids between "sericea" and three native American lespedezas. J. Heredity, 58(2): 57.

Question 2.1 Role of anthropogenic and natural disturbance in establishment B Other Pub. Mat'l back

Describe role of disturbance: Sericea lespedeza readily invades culitivated and disturbed lands through primarily anthropogenic avenues, but has the potential to spread and establish by naural disturbances as well.

Rationale: Sericea lespedeza invasion is primarily associated with human disturbance. Mechanical damage of above ground tissue can stimulate asexual regeneration (1). Additionally, it has been puposefully planted to control erosion of for forage across much of the Southeastern U.S. and has been spread through that activity (2). haying and garzing by livestock are most responsible for new establishments (1). Grazing and browsing animals also have the potential to spread seeds to undisturbed native ecosystems as well (2).

Sources of information: 1) Munger, G. T. 2004. Lespedeza cuneata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/, 2010, April 29.

2) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf, 2010, April 29.

Question 2.2 Local rate of spread with no management A Rev'd, Sci. Pub'n back

Describe rate of spread: Sericea lespedeza areas of infestation are currently increasing at a rapid rate.

Rationale: A recent study found that sericea lespedeza infestations are annually incresaing by 24% on average across the U.S. (1). However, Florida saw a 117% increase in sericea lespedeza hectares in a five year period (1).

Sources of information: 1) Duncan, C. A. and J. J. Jachetta. 2005. Introduction. In C. A. Duncan and J. K. Clark, eds. Invasive Plants of Range and Wildlands and their Envi- ronmental, Economic, and Societal Impacts. Lawrence, KS: Weed Sci- ence Society of America.

Question 2.3 Recent trend in total area infested within state U Other Pub. Mat'l back

Describe trend: Sericea lespedeza is currently not found in the state of Colorado

Rationale: As of 2004, sericea lespedeza was not reported in the state of Colorado (1). It is still not listed as present by the USDA currently (2).

Sources of information: 1) Munger, G. T. 2004. Lespedeza cuneata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/, 2010, April 29.

2) USDA-NRCS. 2010. PLANTS Database. Accesses April 29, 2010 at http://plants.usda.gov/

Question 2.4 Innate reproductive potential A Rev'd, Sci. Pub'n back

Describe key reproductive characteristics: Sericea lespedeza can reproduce both sexually and asexually. Seeds can be produced by self- and cross-pollination. Seed production can be as high as 300 million seeds per acre or 1000 seeds per plant with 40-85% germination depending on the presence of a seed coat. Seeds also remain viable for up to 20 years or more in the soil. Sericea lespedeza can also regenerate from root buds as well.

Rationale: Sericea lespedeza has two modes of reproduction. First, seed production can occur via self- and cross-pollination (1,2). Seed production has been observed to be as high as 300 million seeds per acre where it

was cultivated (3), but even as high as 1000 seeds per plant in other areas (4). Seeds have been observed to have 40% germination with an intact seed coat and up to 85% germination without a seed coat (5). This seed coat can also delay germination (5) and allow seeds to sit viable in the soil for over 20 years (4). Second, sericea lespedeza is though to regenerates asexually from root buds (6).

Sources of information: 1) McGraw, R. L.; Hoveland, C. S. 1995. Lespedezas. In: Barnes, Robert F.; Miller, Darrell A.; Nelson, C. Jerry, eds. Forages. Volume 1: An introduction to grassland agriculture. 5th ed. Ames, IA: Iowa State University Press: 261-271.

2) Stubbendiek, J.; Conard, E. C. 1989. Common legumes of the Great Plains: an illustrated guide. Lincoln, NE: University of Nebraska Press. pp. 330.

3) Guernsey, W. J. 1970. Sericea lespedeza: Its use and management. Farmers' Bulletin No. 2245. Washington, DC: U.S. Department of Agriculture. pp. 29.

4) Colorado Dept. of Agriculture. 2009. Sericea lespedeza identification and management. [Online] Colorado Dept. of Agriculture. Available: http://www.colorado.gov/ag/weeds, 2010, April 29.

5) Logan, R. H., C. S. Hoveland, and E. D. Donnelly. 1969. A germination inhibitor in the seedcoat of sericea [Lespedeza cuneata (Dumont) G. Don]. Agron. J. 61:265-266.

6) Stevens, S. 2002. Element stewardship abstract: Lespedeza cuneata (Dumont-Cours.) G. Don: sericea lespedeza, Chinese bush clover, [Online]. In: Invasives on the web: The Nature Conservancy wildland invasive species program. Davis, CA: University of California, The Nature Conservancy (Producer). Available: http://tncweeds.ucdavis.edu/esadocs/documnts/lespcun.html, 2010, April, 29.

Question 2.5 Potential for human-caused dispersal A Other Pub. Mat'l back

Identify dispersal mechanisms: Human dispersal though cultivation, transportation on haying and mowing equiment, as well as movement along roadsides are the main human dispersal mechanisms for sericea lespedeza.

Rationale: Sericea lespedeza was introduced to the U.S. to control erosion and as a forage. It has subsequently been planted and cultivated throughout much of the Southeastern U.S. (1). The primary methods by which seed is dispersed is by human activity related to its cultivation such as haying or grazing (2). However, roadside mowing may also be responsible for some of its spread. It has even been postulated that seed is being spread via contaminated CRP native seed mixtures (3).

Sources of information: 1) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf [2010, April 29].

2) Smith, T. E., ed. 2003. Vegetation management guideline: sericea lespedeza [Lespedeza cuneata (Dum.-Cours.) Don], [Online]. In: Missouri vegetation management manual. Jefferson City, MO: Missouri Department of Conservation (Producer). Available: http://www.conservation.state.mo.us/nathis/exotic/vegman/twentytw.htm[2010, April 29].

3) Ohlenbusch, P. D.; Bidwell, T.; Fick, W. H.; Kilgore, G.; Scott, W.; Davidson, J.; Clubine, S.; Mayo, J.; Coffin, M.. 2001. Sericea lespedeza: history, characteristics, and identification. MF-2408. Manhattan, KS: Kansas State University, Agricultural Experiment Station, Cooperative Extension Service. 6 p. Available: http://www.oznet.ksu.edu/library/crps12/mf2408.pdf [2010, April, 29].

Question 2.6 Potential for natural long-distance dispersal	C Rev'd, Sci. Pub'n back
Identify dispersal mechanisms: There is some evidence that birds may disperse sericea lespedeza seeds, but it appears rare.	
Rationale: One source mentions bird dispersal of sericea lespedeza seeds (1). Another study shows that germination is enhaced by quail digestion, but that other sourcess of feed are utilized before sericea lespedeza (2).	
Sources of information: 1) Ohlenbusch, P. D.; Bidwell, T.; Fick, W. H.; Kilgore, G.; Scott, W.; Davidson, J.; Clubine, S.; Mayo, J.; Coffin, M.. 2001. Sericea lespedeza: history, characteristics, and identification. MF-2408. Manhattan, KS: Kansas State University, Agricultural Experiment Station, Cooperative Extension Service. 6 p. Available: http://www.oznet.ksu.edu/library/crps12/mf2408.pdf [2010, April, 29]. 2) Blocksome, C.E. 2006. Sericea lespedeza (Lespedeza cuneata): seed dispersal, monitoring, and effect on species richness. Dissertation. Kansas State University, Department of Agronomy.	
Question 2.7 Other regions invaded	A Other Pub. Mat'l back
Identify other regions: Sericea lespedeza has not yet invaded Colorado, but is present in 32 states in the U.S. in ecosytems analgous to Colorado wet meadows, shortgrass pairie, tallgrass prairie, haymeadows, roadsides, and pine woodlands.	
Rationale: The USDA-NRCS PLANTS Database indicates that sericea lespedeza is present in 32 states in the U.S. currently (1). The ecosystems invaded are equivalent or similar to several found in Colorado, including: wet meadows, shortgrass prairie, tallgrass prairie, hatmeadows, roadsides, and pine woodlands, posing a significant threat for invasion into these areas (2).	
Sources of information: 1) USDA-NRCS. 2010. PLANTS Database. Accessed April 29, 2010 at http://plants.usda.gov/ 2) Munger, G. T. 2004. Lespedeza cuneata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/, 2010, April 29.	
Question 3.1 Ecological amplitude/Range	A Other Pub. Mat'l back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Sericea lespedeza is not yet found in Colorado but has the potential to have a widespread ecological impact.	
Rationale: Sericea lespedeza is adpated to grow in a variety of different ecosystems found in Colorado, including wet meadows, shortgrass prairies, tallgrass prairies, haymeadows, roadsides, and pine woodlands (1). It is also tolerant of drought, shade, and can establish on sterile, steep and/or eroded soils (2)	
Sources of information: 1) USDA-NRCS. 2010. PLANTS Database. Accessed April 29, 2010 at	

http://plants.usda.gov/

2) Colorado Dept. of Agriculture. 2009. Sericea lespedeza identification and management. [Online] Colorado Dept. of Agriculture. Available: http://www.colorado.gov/ag/weeds, 2010, April 29.

Question 3.2 Distribution/Peak frequency U Other Pub. Mat'l back

Describe distribution: Sericea lespedeza is not found in Colorado

Rationale: There have been no recorded reports of sericea lespedeza in the state of Colorado.

Sources of information: 1) USDA-NRCS. 2010. PLANTS Database. Accessed April 29, 2010 at http://plants.usda.gov/

Question 4.1 Poisonous to Livestock D Other Pub. Mat'l back

Describe impacts in terms of high probability of death, long-term health impacts, or short-term health impacts: There are negligible perceived impacts to livestock from sericea lespedeza.

Rationale: Sericea lespedeza was introduced to the U.S. as a forage crop (1). While not as palatable as other forages, it poses no threat to the health of livestock (1). In fact, sericea lespedeza is fed to some livestock to rid them of nematodes (2)

Sources of information: 1) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf [2010, April 29].

2) Shaik, S.A., T.H. Terrill, J.E. Miller, B. Kouakou, G. Kannan, R.M. Kaplan, J.M. Burke, and J.A. Mosjidis. 2006. Sericea lespedeza hay as a natural deworming agent against gastrointestinal nematode infection in goats. Veterinary Parasitology 139: 150–157.

Question 4.2 Detrimental to Economic Crops C Other Pub. Mat'l back

Describe impacts to all aspects of cropping systems (see guidelines): Sericea lespedeza has the potential to invade desirable forage crops and reduce the harvestable yield through several mechanisms.

Rationale: Sericea lespedeza has been observed to decrease desirable forage yields by competing for sunlight and water, as well as through allelopathy. Germination of bahiagrass, bermudagrass, rye, ryegrass, and tall fescue has been reduced by 15, 24, 7, 11 and 15 percent, respectively, by sericea lespedeza allelopathic compounds alone (1).

Sources of information: 1) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University,

Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf [2010, April 29].
Question 4.3 Detrimental to Mgmt of Agricultural System, Rangeland and Pasture D Other Pub. Mat'l back
Describe impacts to water diversion systems, increased water use, reduced forage for livestock: Similar to cultivated forages, sericea lespedeza can reduce forage in pastures and range for livestock.
Rationale: Through allelopathic excretions and competition for sunlight and water, sericea lespedeza will reduce the amount of forage available for livestock (1,2). However, it can be utilized as a forage by livestock even though it is not highly palatable or desirable (2).
Sources of information: 1) Colorado Dept. of Agriculture. 2009. Sericea lespedeza identification and management. [Online] Colorado Dept. of Agriculture. Available: http://www.colorado.gov/ag/weeds, 2010, April 29. 2) Cummings, D.C., T.G. Bidwell, C.R. Medlin, S.D. Fuhlendorf, R.D. Elmore, and J.R. Weir. 2006. Ecology and management of sericea lespedeza, NREM-2874. [Online] Oklahoma State University, Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources. Available: http://osufacts.okstate.edu/docushare/dsweb/Get/Document-1338/NREM-2874web%20color.pdf [2010, April 29].
Question 4.4 Human Health Impacts A Rev'd, Sci. Pub'n back
Describe key human impacts such as; irritants, property values, recreational values, and industry impacts: There is evidence that infestations of sericea lespedeza can decrease property values and there may be negative impacts to the forage seed industry if it is listed as a noxious weed.
Rationale: A recent study found that property values in Kansas were decreased from $726/ha to $183/ha due to sericea lespedeza infestations (1). It could also be expected that the forage seed industry could suffer by the listing of sericea lespedeza as a noxious weed.
Sources of information: 1) Fechter, R. H. and R. Jones. 2001. Estimated economic impacts of the invasive plant sericea lespedeza on Kansas grazing lands. J. Agric. Appl. Econ. 33:630.

Worksheet A

back

Reaches reproductive maturity in 2 years or less	**Yes: 1 pt**
Dense infestations produce >1,000 viable seed per square meter	**Yes: 2 pts**
Populations of this species produce seeds every year.	**Yes: 1 pt**

Seed production sustained over 3 or more months within a population annually		**Yes: 1 pt**
Seeds remain viable in soil for three or more years		**Yes: 2 pts**
Viable seed produced with *both* self-pollination and cross-pollination		**Yes: 1 pt**
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes		**Yes: 1 pt**
Fragments easily and fragments can become established elsewhere		**Yes: 2 pts**
Resprouts readily when cut, grazed, or burned		**Yes: 1 pt**
	12 pts	**Total Unknowns**
	A (6+ pts)	

Note any related traits: enter text here

Worksheet B - Colorado Ecological Types and Land Use

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Major Ecological and Land Use Types	Minor Ecological and Land Use Types	Code*
Freshwater and Aquatic Systems	lakes, ponds, reservoirs	**score**
	rivers, streams, canals	**score**
Riparian and wetlands	Riparian forest	**score**
	Riparian shrublands	**score**
	Wet meadows	**Unknown**
Grasslands	Shortgrass prairie	**Unknown**
	Tallgrass prairie	**Unknown**
	Sandsage prairie	**score**
	Montane meadows	**score**
Irrigated Agriculture	Hay meadows	**Unknown**
	Irrigated crops (alfalfa, corn, sugar beets)	**score**
Dryland Agriculture	Dryland crops (wheat, corn, millet, dryland grass hay, sunflowers, mustard for biodiesel)	**score**
Developed Lands	Urban, exurban, industrial	**Unknown**
Arid Shrublands	Sagebrush shrublands	**score**
	Foothills shrublands	**score**
	Gambel oak shrublands	**score**
Woodlands	Pinyon - juniper	**Unknown**
	Ponderosa pine	**Unknown**
	Limber pine	**score**
Forest	Lodgepole pine	**score**
	Spruce-fir	**score**
Alpine	Boulder and rock fields	**score**
	Dwarf shrublands	**score**
	Tundra	**score**
Barrens (lower elevation)	Dunes	**score**
	Rock outcrops	**score**
	Canyonlands	**score**

* A. means >50% of type occurrences are invaded; B means >20% to 50%; C. means >5% to 20%; D. means present but ≤5%; U. means unknown (unable to estimate percentage of occurrences invaded).

Worksheet C – Human Impacts

Human health impacts; irritants (sap), spines, poisonous, and/or smoke impacts	**No: 0 pt**
Property values are decreased due to increased risk of fire	**No: 0 pts**
Decreased property value due to moderate to heavy infestations	**Yes: 2 pts**
Decreased land value for recreational use; boating, fishing, camping, etc.	**No: 0 pts**
Impact of listing detrimental to industry; agriculture, horticulture, nursery, and/or seed	**Yes: 2 pt**

	Total Pts	**Total Unknowns**
	A (4+ pts)	

Note any related traits: enter text here